

# A conspectus of *Astrotricha* DC. (Araliaceae) in Queensland, including two new species

A.R. Bean

## Summary

Bean, A.R. (1997). A conspectus of *Astrotricha* DC. (Araliaceae) in Queensland, including two new species. *Austrobaileya* 5(1): 63–69. The eleven species of *Astrotricha* DC. indigenous to Queensland are listed in systematic order, with synonymy, place of publication and distribution given. Two new species, *A. brachyandra* and *A. umbrosa*, are described and illustrated. A comprehensive key to Queensland species is included.

Key words: *Astrotricha*, Araliaceae, key, taxonomy, *Astrotricha brachyandra*, *Astrotricha umbrosa*, Australian flora, Queensland

A.R.Bean, Queensland Herbarium, Meiers Road, Indooroopilly, Queensland 4068, Australia

## Introduction

*Astrotricha* is an endemic Australian genus with representatives in Queensland, New South Wales and Victoria, and one species in Western Australia. Recent research has resulted in the description of several new species (Bean 1991, Makinson 1991, Bean 1995).

The present paper aims to summarise distributional and nomenclatural data on the species indigenous to Queensland, and to present descriptions of two new species.

No new infrageneric classification is proposed, but the published name *A.* subg. *Hexocenia* Domin is used for the species allied to *A. pterocarpa*.

## Taxonomy

### A key to Queensland species of *Astrotricha* DC.

1. Leaves > 13 mm wide ..... 2  
Leaves < 13 mm wide ..... 7
2. Petioles 5.5–21 cm long; inflorescence > 70 cm long; fruits winged ..... 3  
Petioles 0.6–5.0 cm; inflorescence 20–40 cm long; fruits without wings ..... 5
3. Leaves 9–16 cm wide, base cordate, midrib rounded below ..... **3.A. cordata**  
Leaves 1.7–5.5 cm wide, base obtuse, midrib keeled below ..... 4
4. Inflorescence woolly-hairy, umbels 10–15-flowered, flowers creamy-white; leaves 1.7–4.0 cm wide ..... **1.A. pterocarpa**  
Inflorescence glabrous, umbels 7–11-flowered, flowers purple; leaves 3.3–5.5 cm wide ..... **2.A. intermedia**
5. Flowers purple; stems mostly unbranched ..... **4.A. roddii**  
Flowers white or greenish-white; stems branched ..... 6

6. Petioles 2.0–5.0 cm long ..... **11. A. latifolia**  
 Petioles 0.6–1.3 cm long ..... **10. A. umbrosa**
7. Leaves less than 7 mm wide ..... 8  
 Leaves (6-)7–13 mm wide ..... 9
8. Leaves 3.5–7 mm wide, petioles 4–6 mm long; inflorescence 16–30 cm  
 long ..... **6. A. biddulphiana**  
 Leaves 2.2–3.5 mm wide, petioles 3–4 mm long; inflorescence 3–9 cm  
 long ..... **7. A. pauciflora**
9. Leaves glabrous on both surfaces ..... **8. A. glabra**  
 Leaves with dense stellate tomentum on abaxial surface ..... 10
10. Petioles (15-)23–30 mm long; flowers purple ..... **5. A. brachyandra**  
 Petioles 3–15 mm long; flowers white ..... 11
11. Tomentum on stems and leaves loose, individual hairs c. 1 mm diameter;  
 leaves 11–20 mm wide; pedicels 3–9.5 mm long ..... **10. A. umbrosa**  
 Tomentum on stems and leaves tight, individual hairs c. 0.5 mm  
 diameter; leaves (6-)7–11 mm wide; pedicels 8–15 mm long ..... **9. A. longifolia**

*Astrotricha* subg. *Hexocenia* Domin, Biblioth. Bot. 89: 485 (1928). **Type:** *Astrotricha pterocarpa* Benth.

Monopodial shrubs, monocarpic; mericarps 3-locular, fruits winged (in most species).

- 1. *Astrotricha pterocarpa*** Benth., Fl. Austral. 3: 379 (1867). **Type:** Queensland. COOK DISTRICT: Fitzroy Island, *W. Hill* s.n. (holo: K).

A description of this species is given in Bean (1991).

***Distribution and habitat:*** *A. pterocarpa* is confined to north Queensland where it extends from the Melville Range area north of Cooktown southwards to Pentland and near Mackay. It grows in shallow sandy soil, over sandstone or granite, in eucalypt woodland.

- 2. *Astrotricha intermedia*** A.R.Bean, *Austrobaileya* 3(3): 524 (1991). **Type:** Queensland. LEICHHARDT DISTRICT: Nogoa River camping area, Salvator Rosa National Park, 9 December 1989, *R.O. Makinson* 600 (holo: BRI; iso: CANB, NSW).

***Illustration:*** Williams, Native Pl. Queensl. 3: 31 (1987), as *A. pterocarpa*.

***Distribution and habitat:*** *A. intermedia* occurs along the central Queensland coast between Marlborough and Rosedale, and west almost as far as Tambo. It grows in open eucalypt woodland, in shallow sandy soils derived from sandstone, granite or sometimes serpentinite.

- 3. *Astrotricha cordata*** A.R.Bean, *Austrobaileya* 3(3): 523 (1991). **Type:** Queensland. LEICHHARDT DISTRICT: Blackdown Tableland, c. 35 km SE of Blackwater, September 1971, *R.J. Henderson* H1018, *L. Durrington* & *P. Sharpe* (holo: BRI).

***Illustrations:*** Williams, Native Pl. Queensl. 2: 47 (1984), as *A. pterocarpa*.

***Distribution and habitat:*** *A. cordata* is sporadically distributed in southern Queensland from Blackdown Tableland to Mundubbera and Biggenden, and west to Salvator Rosa N.P. There is one known population in New South Wales, north-west of Grafton. It inhabits skeletal soils derived from sandstone, granite or occasionally rhyolite, in open eucalypt woodland.

4. ***Astrotricha roddii*** Makinson, *Telopea* 4(2): 313 (1991). **Type:** New South Wales. NORTH WESTERN SLOPES: Macintyre Falls, 3 km S of junction of Macintyre and Severn Rivers, 23 November 1984, *A.N. Rodd* 4096 (holo: NSW; iso: BRI, MEL).

**Illustrations:** *Flora of N.S.W.* 3: 82 (1992).

**Distribution and habitat:** *A. roddii* is mainly distributed on the north-western slopes of New South Wales, particularly around Ashford. There is one population in Queensland, on Mt Bullaganang north-east of Texas. It occurs in shallow sandy acidic soils, with outcropping rocks, in woodland often dominated by *Eucalyptus dealbata* Cunn. ex Schauer and *E. melanophloia* F.Muell.

**Note:** Although *A. roddii* does not possess the winged fruits characteristic of the other species of *A.* subg. *Hexocenia*, its placement there is supported by its unbranched slender habit and its 3-locular mericarps.

***Astrotricha*** DC. subg. ***Astrotricha***

Branched shrubs, perennial; mericarps 1-locular, fruits not winged.

5. ***Astrotricha brachyandra*** A.R.Bean **sp. nov.**, affinis *A. biddulphiana* autem petiolis multus longioribus, foliis latoribus apice acuminatis, staminibus brevioribus, partibus omnibus inflorescentiae tomento stellato obsitis differt. **Typus:** Queensland. PORT CURTIS DISTRICT: 41 km east of Biloela, in Kroombit Tops S.F., 24°25'S, 150°55'E, 15 November 1995, *E.J. Thompson* BIL207 & *R.J. Price* (holo: BRI; iso: CANB, MEL, NSW, distribuendi).

Shrub to 2 m high, erect, sparsely branched. Stems, petioles and abaxial surfaces of leaves stellate-pubescent, with individual hairs c. 0.1 mm across. Leaves alternate, narrowly lanceolate, 90–140 × 7–13 mm, acuminate, dark green adaxially, pale yellow abaxially, midrib impressed adaxially, raised abaxially; petioles terete, (15-)23–30 mm long. Panicles terminal, up to 60 cm long, densely

stellate-hairy, grey in colour; bracts ensiform, 1.0–2.5 mm long. Unit inflorescence umbellate, 5–9-flowered; peduncles and pedicels slender, pedicels 8–20 (–25) mm long. Flowers bisexual, protandrous, 4–5 mm across. Hypanthium stellate-hairy, 1.2–1.9 mm long at anthesis, campanulate; calyx lobes deltate to semi-orbicular, apex acute or obtuse, c. 0.5 × 0.5 mm, purple, tomentose. Petals 5, deltate, 2.0–2.9 × 1.1–1.5 mm, purple, recurved, caducous; glabrous on adaxial surface, sparsely stellate hairy on abaxial surface; apex acuminate. Stamens 5, alternating with the petals; filaments terete, c. 0.6 mm long; anthers white, c. 1.4 mm long, versatile, dorsifixed, opening by longitudinal slits. Styles 2, 1.0–2.0 mm long; at first erect, later spreading from base, persistent. Ovules 1 per carpel. Fruit a schizocarp, elliptical or somewhat quadrangular in transverse section, 5.0–6.5 mm long, 2.5–3.5 mm wide, 2–3 mm thick, surface stellate-hairy; brown to grey, splitting at maturity; mericarps 1-locular. Fig. 1 G–K.

**Specimens examined:** Queensland. PORT CURTIS DISTRICT: Kroombit Tops SF (boundary) on ridge above Annies gorge, Dec 1994, *Brushe* JB611 (BRI); creek flowing into Kroombit Ck near Annies Gorge falls, c. 1 km SE of falls, Oct 1995, *Brushe* JB201 (BRI); Kroombit Tops N.P., western section, Aug 1995, *Thompson* BIL114 & *Turpin* (BRI); 41 km E of Biloela, in Kroombit Tops S.F., Oct 1995, *Thompson* BIL181 & *Turpin* (BRI, CANB, MEL, NSW); 21.5 km NE of Biloela, Feb 1996, *Thompson* BIL214 & *Price* (BRI).

**Distribution and habitat:** *A. brachyandra* is known only from Kroombit Tops east of Biloela and the Callide Range north-east of Biloela. It grows in sandy soils derived from sandstone, as a component of woodland dominated by *Eucalyptus trachyphloia* F.Muell., *E. suffulgens* L.A.S. Johnson & K.D. Hill or *E. cloeziana* F.Muell. Altitudes vary between 600 and 800 metres.

**Phenology:** Flowers have been recorded from October to December.

**Affinities:** *A. brachyandra* is closest to *A. biddulphiana*, and shares with that species the purple flowers and obconical fruits. *A. brachyandra* differs by the petioles being (15-)23–30 mm long (4–6 mm long for

*A. biddulphiana*), leaves 7–13 mm wide with acuminate apex (3.5–7 mm wide with acute apex for *A. biddulphiana*), shorter stamens and presence of stellate tomentum on all parts of the inflorescence.

**Conservation status:** The risk category for *Astrotricha brachyandra* according to the criteria of Chalson & Keith (1995) is 'priority for investigation' (criterion a), or 2RCi according to the system of Leigh and Briggs (1996). The species is known only from Kroombit Tops and Callide Range, with a total geographical range of about 50 kilometres. The recommended conservation status for this species as defined by the *Queensland Nature Conservation Act 1992* is 'rare'.

**Etymology:** The species epithet *brachyandra* is derived from the Greek *brachy*-short and *andros*-male, and refers to the short stamens which are a feature of this species.

**6. *Astrotricha biddulphiana*** F. Muell., *Victorian Naturalist* 7: 115 (1890). **Type:** Queensland. MARANOVA DISTRICT: near Mt Playfair, *H. Biddulph* s.n. (holo: MEL? n.v.).

*Astrotricha ledifolia* var. *glabriflora* F.M. Bailey, *Queensland Flora* 2: 732 (1900). **Type:** Queensland. near Rockhampton, undated, *O'Shanesy* s.n. (holo: MEL, photo!).

**Distribution and habitat:** *A. biddulphiana* occurs in southern Queensland away from the coast, extending from Lake Elphinstone to Barakula S.F. near Chinchilla, and west to Bull Creek gorge and Mt Playfair. It grows in eucalypt woodland on shallow sandy soils over sandstone or granite.

**7. *Astrotricha pauciflora*** A.R. Bean, *Austrobaileya* 4(3): 407 (1995). **Type:** Queensland. MORETON DISTRICT: North Ridge, Mount Barney N.P., 16 July 1994, *A.R. Bean* 7734 & *D.A. Halford* (holo: BRI; iso: CANB, K, MEL, NSW).

**Distribution and habitat:** *A. pauciflora* is confined to Mt Barney and Mt Maroon, both in the Mt Barney National Park, Queensland,

close to the N.S.W. border. It grows in rocky crevices in low eucalypt woodland or heathland, at altitudes above 600 metres.

**8. *Astrotricha glabra*** Domin, *Biblioth. Bot.* 89: 486 (1928); *Astrotricha longifolia* var. *glabrescens* F.M. Bailey, *Queensland Agricultural Journal* 21(6): 293 (1908). **Type:** Moreton Island, 12–14 September 1908, *C.T. White* s.n. (lecto (here chosen): BRI [AQ 333042]).

**Distribution and habitat:** *A. glabra* is endemic to south-eastern Queensland and is found on North Stradbroke Island, Moreton Island, Fraser Island and the Cooloola area. It grows under eucalypt forest in deep sands of quaternary age.

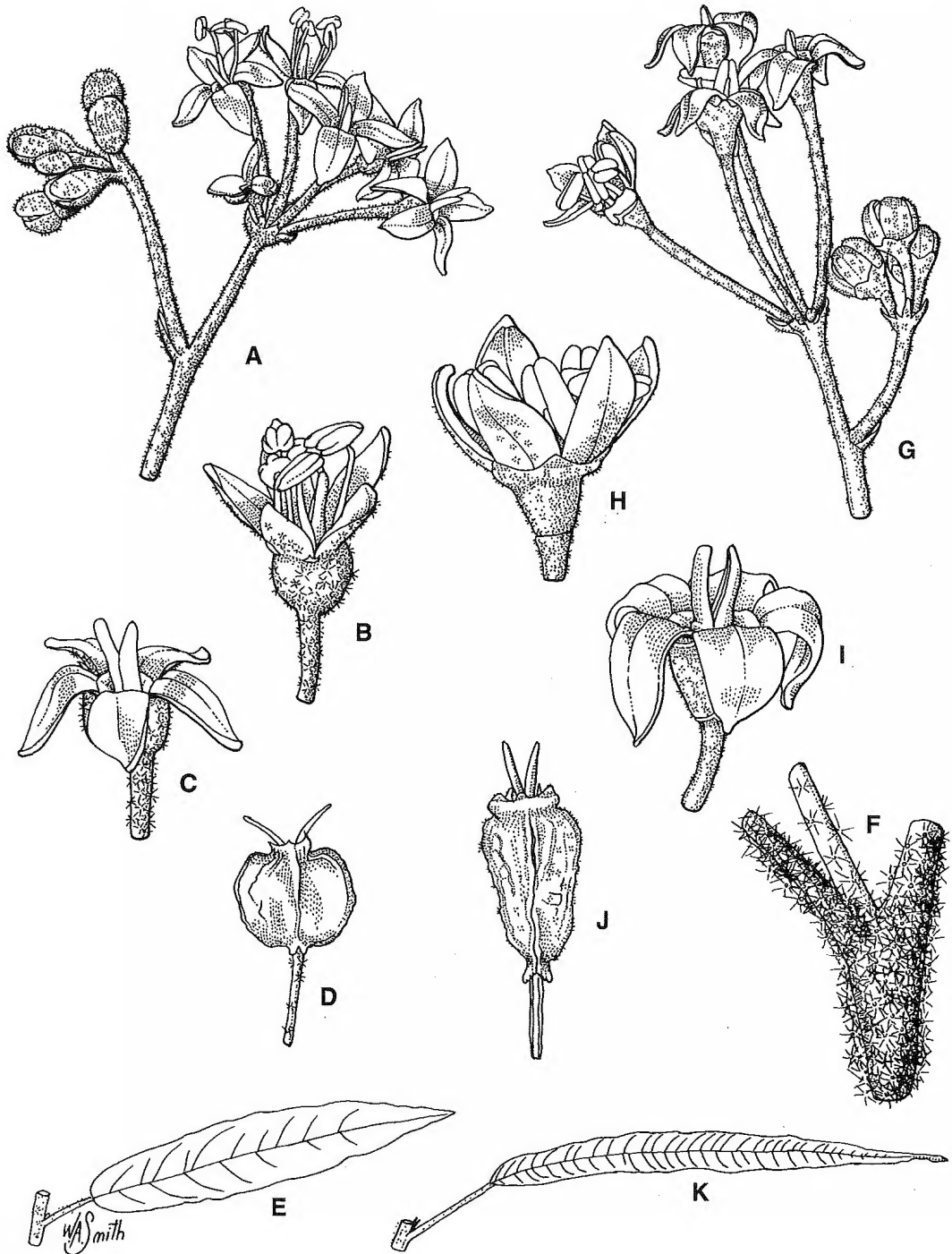
**Note:** In his treatment of *Astrotricha glabra*, Domin (1928) attributes the original publication of a varietal epithet '*glabra*' to F. Mueller in *Fragmenta Phytographiae Australiae* 7: 148. While Mueller did discuss the occurrence of a glabrous form there, he did not provide a description of the plant, nor did he coin the epithet '*glabra*'. The correct authorship citation is hence *A. glabra* Domin.

**9. *Astrotricha longifolia*** Benth., in S.L. Endlicher et al., *Enum. pl.* 54 (1837). **Type:** New South Wales. Sydney area (syn: *Bauer* s.n.; *Sieber* 538).

**Illustrations:** Williams, *Native Pl. Queensl.* 2: 47 (1984).

**Distribution and habitat:** *A. longifolia* inhabits coastal areas of southern Queensland and New South Wales. It grows in low woodland dominated by *Eucalyptus* spp. or *Banksia* spp., in sandy soils.

**10. *Astrotricha umbrosa*** A.R. Bean **sp. nov.**, affinis *A. longifoliae* autem tomento laxiore ex pilis stellatis majoribus constante, foliis plerumque 11–20 mm latis (non 6–11 mm latis), pedicellis 3–9.5 mm longis (non 8–15 mm longis) differt. **Typus:** Queensland. BURNETT DISTRICT: Dead End lookout, Coomingleh S.F., west of Monto, 17 August 1995, *A.R. Bean* 8859 (holo: BRI; iso: CANB, DNA, MEL, NSW).



**Fig. 1.** *Astrotricha umbrosa* A. portion of inflorescence  $\times 4$ . B. flower at male stage  $\times 8$ . C. flower at female stage  $\times 8$ . D. fruit  $\times 4$ . E. leaf  $\times 0.5$ . F. stellate hairs  $\times 8$ . *Astrotricha brachyandra*. G. portion of inflorescence  $\times 4$ . H. flower at male stage  $\times 8$ . I. flower at female stage  $\times 8$ . J. fruit  $\times 4$ . K. leaf  $\times 0.5$ . A-C,E,F Bean 9110; D, Bean 2540; G-K, Thompson BIL207 & Price.

*Astrotricha* sp. (Pomona A.R.Bean 1157) in Bean (1994).

Shrub to 2 m high, erect, well-branched. Stems, petioles and abaxial surfaces of leaves stellate-pubescent, with individual hairs c. 1.0 mm across. Leaves alternate, lanceolate to narrowly lanceolate, (50)70–120 × (8–)11–20 mm, acuminate, dark green adaxially, pale yellow abaxially, midrib impressed adaxially, raised abaxially; petioles terete, 6–13(-17) mm long. Panicles terminal, 10–30 cm long, densely stellate-hairy, brown to yellow in colour; bracts ensiform, 1.7–3.5 mm long. Unit inflorescence umbellate, (4–)5–11-flowered; peduncles and pedicels slender, pedicels 3.0–9.5 mm long. Flowers bisexual, protandrous, 4.5–6.0 mm across. Hypanthium stellate-hairy, 1.0–1.5 mm long at anthesis, campanulate; calyx lobes deltate, apex acute or obtuse, c. 0.4 × 0.4 mm, green to white, stellate-hairy or mostly glabrous. Petals 5, deltate, 1.5–2.5 × 0.7–1.1 mm, white or pinkish, somewhat persistent; glabrous on adaxial surface, stellate hairy on abaxial surface; apex acute to acuminate. Stamens 5, alternating with the petals; filaments terete, c. 1.9 mm long; anthers white, c. 1.1 mm long, versatile, dorsifixed, opening by longitudinal slits. Styles 2, 1.5–2.8 mm long; at first erect, later spreading from base, persistent. Ovules 1 per carpel. Fruit a schizocarp, ± orbicular in outline, 3.3–4.0 mm long, 3.9–4.3 mm wide, 1.2–1.5 mm thick, glabrescent; brown, splitting at maturity; mericarps 1-locular. Fig. 1 A–F.

**Specimens examined:** Queensland. PORT CURTIS DISTRICT: Kroombit Tops SF 316, 48 km E of Biloela, Sep 1988, *Gibson* TOI431 (BRI); near headwaters of Cedar Ck, SF 583, Jul 1995, *Thompson* CAL312 & *Turpin* (AD, BRI, DNA, NSW). BURNETT DISTRICT: near Dead End Lookout, Coomingleh SF, near Monto, Aug 1990, *Bean* 2086 (BRI, MEL, NSW); Cania Gorge NP, c. 600 m W of Mt Dowgo, Nov 1995, *Brushe* JB315 & *Hendry* (BRI); c. 15 km (direct) WNW of Monto, turn-off from Forest Drive to Dead End Lookout, Coomingleh SF, Oct 1988, *Makinson* 550 & *Krauss* (AD, BRI, CANB, CHR, K, MEL, NSW). WIDE BAY DISTRICT: Mt Cooroora, near Pomona, Oct 1989, *Bean* 1157 (BRI); Linda Garrett Park, 2 km W of Mapleton, Oct 1990, *Bean* 2539 (BRI, NSW); Oakey Creek road, Mapleton SF, Oct 1990, *Bean* 2540 (BRI); Scenic Drive, Blackall Range, c. 5 km N of Mapleton, Sep 1988, *Sharpe* 4824 et al. (BRI, NSW). MORETON DISTRICT: Delicia road, Mapleton, Dec 1989, *Bean* 1257 (BRI); Cooloolabin SF, Mapleton Forest Drive, 2 km N of Mapleton, Sep 1989, *Leiper* s.n. (BRI).

**Distribution and habitat:** *A. umbrosa* is endemic to southern Queensland, extending from Kroombit Tops and the Boyne Valley, to the Mapleton area. It grows in relatively dense and shady open forest dominated by *Eucalyptus* spp. including *E. pilularis* Sm., *E. cloeziana* F.Muell. and *E. acmenoides* Schauer, in sandy or sandy loam soils.

**Phenology:** Flowering occurs in September–October.

**Notes:** *A. umbrosa* is similar in appearance to *A. floccosa*, but it differs by its ensiform bracts 1.7–3.5 mm long (filamentous, 2–10 mm long for *A. floccosa*), inflorescences 10–30 cm long (30–100 cm long for *A. floccosa*) and the 5–11-flowered umbels (12–20-flowered for *A. floccosa*).

From *A. longifolia*, it differs by its stellate hairs c. 1.0 mm across (c. 0.5 mm for *A. longifolia*), looser tomentum, leaves mostly 11–20 mm wide (6–11 mm wide for *A. longifolia*), and pedicels 3.0–9.5 mm long (8–15 mm for *A. longifolia*).

**Conservation status:** The risk category for *Astrotricha umbrosa* according to the criteria of Chalson & Keith (1995) is 'susceptible' (criteria e and f), or 2RCi according to the system of Leigh and Briggs (1996). The species is known from about half a dozen widely scattered populations. The recommended conservation status for this species as defined by the Queensland *Nature Conservation Act* 1992 is 'rare'.

**Etymology:** The species epithet is from the Latin *umbrosus* meaning shady or growing in shade and refers to the habitat of the species in rather dense, shady forests.

**11. *Astrotricha latifolia* Benth., in S.L. Endlicher et al., Enum. pl. 54 (1837); *A. floccosa* var. *incana* Benth., Fl. Austral. 3: 380 (1867); *A. floccosa* var. *latifolia* (Benth.) Domin, Biblioth. Bot. 89: 486 (1928), nom. illeg. **Type:** 'in collectione Baueriana' (?W n.v.).**

**Illustration:** Flora of N.S.W. 3: 82 (1992).

**Distribution and habitat:** *A. latifolia* occurs in southern Queensland south from about Gympie and west to the Great Dividing Range, and along much of the New South Wales coast. It inhabits tall eucalypt forest in high rainfall areas.

### Acknowledgements

I am grateful to John Thompson for his persistent efforts to collect good flowering and fruiting material of *A. brachyandra*, to Will Smith for the illustrations, and Les Pedley for the Latin diagnoses.

### References

- BEAN, A.R. (1991). Notes on *Astrotricha* DC. (Araliaceae) in Queensland. *Austrobaileya* 3(3): 523–528.
- (1994). *Astrotricha*. In R.J.F. Henderson (ed.) *Queensland Vascular Plants: Names and Distribution*. Brisbane: Queensland Department of Environment and Heritage.
- (1995). A new species and new record for *Astrotricha* DC. (Araliaceae) in Queensland. *Austrobaileya* 4(3): 407–409.
- CHALSON, J.M. & KEITH, D.A. (1995). *A Risk Assessment scheme for Vascular Plants: Pilot Application to the Flora of New South Wales*. Hurstville: National Parks and Wildlife Service.
- DOMIN, K. (1928). *Astrotricha*. In Beiträge zur Flora und Pflanzengeographie Australiens. *Bibliotheca Botanica* 89: 485–487.
- BRIGGS, J.D. & LEIGH, J.H. (1996). *Rare or Threatened Australian Plants*. Melbourne: CSIRO.
- MAKINSON, R.O. (1991). Two new species of *Astrotricha* (Araliaceae) from New South Wales. *Telopea* 4: 313–319.